



## Small Spacecraft Technology Program

The Small Spacecraft Technology Program (SSTP) develops and demonstrates new capabilities employing the unique features of small spacecraft for science, exploration and space operations. Small spacecraft represent an emerging class of satellites, robots and systems that exploit their small size to take advantage of rideshare launch opportunities at reduced cost. Small spacecraft also exploit the growing amount of technical capabilities that we are witnessing in the high technology and electronics industries. As a result,

small spacecraft and platforms are becoming more and more capable as their overall size continues to decrease.

The SSTP is one of nine major programs managed within the Space Technology Mission Directorate, and one of three flight programs. The program consists of four elements intended to encompass the development and demonstration of a range of technologies and capabilities and to engage the talents of the broad community of researchers and technologists from government, industry and academia.

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- **Focused Technology Development and Demonstrations:** projects focusing on small spacecraft technology areas such as communications, propulsion, power, guidance, navigation and control, instrumentation, and bus subsystems;
- **Mission Capability Demonstrations:** flight demonstration projects for new mission capabilities;
- **Leveraged Investments:** continuation of selected projects from Small Business Innovation Research or other programs as well as prize challenges and other initiatives; and
- **Smallsat Technology Partnerships:** collaboration between universities and NASA in technology development and demonstrations.

SSTP achieves the goals of these four elements via the funding of the development, test, launch and operation of small spacecraft systems, primarily as rideshare payloads. This process allows for rapid test of new technologies, while also allowing for space technologists to evaluate emerging technologies that represent potentially significant benefit and utility for future space missions.

Currently, five flight demonstration projects are underway: Edison Demonstration of Smallsat Networks (EDSN); PhoneSat; Integrated Solar Array and Reflectarray Antenna (ISARA) for High Bandwidth Cubesats; Cubesat Proximity Operations Demonstration (CPOD); and Optical Communications and Sensor Demonstration (OCSD). Additionally, in late 2013, the SSTP selected 13 partnership teams to collaborate with NASA on projects to

develop and demonstrate new technologies and capabilities to spur innovation in communication, navigation, propulsion, power, science capabilities, and advanced manufacturing for small spacecraft. Results from these projects could lead to the development of miniature radio and navigation devices, low power laser communications, and radiation-tolerant computers. Additional emerging concepts could include energy storage devices and electric propulsion for deep space missions. Details on these projects may be found on the program website listed below.

The SSTP is managed by Ames Research Center, located at Moffett Field, California. The program plans to continue to release regular solicitations for small spacecraft technology development and demonstration, as funding allows.

**For more information about the SSTP, visit:**

[http://www.nasa.gov/directorates/spacetech/small\\_spacecraft/](http://www.nasa.gov/directorates/spacetech/small_spacecraft/)

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